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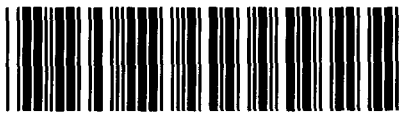

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SOAH DOCKET NO. 473-19-1265
PUC DOCKET NO. 48785

2019 MAR -5 PM 12: 20
PUBLIC UTILITY COMMISSION
FILING CLERK

JOINT APPLICATION OF ONCOR ELECTRIC DELIVERY COMPANY LLC AND AEP TEXAS INC. TO AMEND THEIR CERTIFICATES OF CONVENIENCE AND NECESSITY FOR A DOUBLE CIRCUIT 345-KV TRANSMISSION LINE IN PECOS, REEVES, AND WARD COUNTIES, TEXAS (SAND LAKE TO SOLSTICE)	§	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

ONCOR ELECTRIC DELIVERY COMPANY LLC'S AND AEP TEXAS INC.'S JOINT POST-HEARING BRIEF REGARDING THE SAND LAKE – SOLSTICE PROJECT

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TO THE HONORABLE ADMINISTRATIVE LAW JUDGES:

COME NOW Oncor Electric Delivery Company LLC ("Oncor") and AEP Texas Inc. ("AEP Texas") (collectively, the "Applicants") and file this Joint Post-Hearing Brief Regarding the Sand Lake – Solstice Project as required by State Office of Administrative Hearings ("SOAH") Order No. 2.[1]

I. INTRODUCTION AND SUMMARY

A. Project Overview

This proceeding involves the Applicants' joint application ("Application") to amend their respective certificates of convenience and necessity ("CCN") for a proposed double-circuit 345-kilovolt ("kV") transmission line in Pecos, Reeves, and Ward Counties, Texas (the "Proposed Project").[2] The Proposed Project consists of constructing a new transmission line, generally on double-circuit 345-kV lattice steel tower structures, extending from Oncor's Sand Lake Switch in Ward County to AEP Texas' Solstice Switch in Pecos County.[3]

In February 2018, Oncor submitted a suite of projects known as "Far West Texas Project 2" to the Electric Reliability Council of Texas ("ERCOT"). ERCOT separately reviewed and approved a variation of "Far West Texas Project 2" to include the Proposed Project, with ERCOT's Board of Directors endorsing the Proposed Project on June 12, 2018, as "critical to reliability" pursuant to 16 Texas Administrative Code ("TAC") § 25.101(b)(3)(D).[4] The Proposed Project, therefore, was required to be reviewed under a 180-day timeframe, and ERCOT's recommendation of the Proposed Project is entitled to great weight in this proceeding.

The Proposed Project will require a typical right-of-way ("ROW") width of approximately 160 feet, and the centerline will be located in approximately the center of the ROW.[5] The Applicants have not yet acquired any of the ROW for the Proposed Project.[6]

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1 SOAH Order No. 2 at 5 (Dec. 10, 2018).

2 On the same day the Application was filed, LCRA Transmission Services Corporation ("LCRA TSC") and AEP Texas jointly filed an application to amend their CCN for a proposed double-circuit 345-kV transmission line in Pecos County, Texas to interconnect the Bakersfield and Solstice stations (the "Bakersfield to Solstice Project"), which was assigned Docket No. 48787. On November 15, 2018, SOAH Order No. 1 consolidated the Application and the application for the Bakersfield to Solstice Project into Docket No. 48785. SOAH Order No. 1. at 3 (Nov. 15, 2018). On February 22, 2019, SOAH Order No. 10 severed the application for the Bakersfield to Solstice Project from Docket No. 48785 and remanded it to the Public Utility Commission of Texas, finding that the issues concerning the Bakersfield to Solstice Project settled. SOAH Order No. 10 at 1 (Feb. 22, 2019).

3 Oncor/AEPTX Ex. 6 at 3 (Peppard Direct).

4 Oncor/AEPTX Ex. 9 at 18 (Kawakami Direct).

5 Oncor/AEPTX Ex. 6 at 4 (Peppard Direct).

6 Oncor/AEPTX Ex. 6 at 4 (Peppard Direct).

The Application included one route that Applicants believe best meets the requirements of PURA and the rules of the Public Utility Commission of Texas ("Commission")—route 320[7]—and 28 additional alternative routes for the Proposed Project, which were selected from among 408 preliminary alternative routes developed by Halff Associates, Inc. ("Halff") as reflected in the environmental and alternative route analysis filed with the Application.[8] The 29 alternative routes filed with the Application are geographically diverse and differ with respect to route length, cost, number of habitable structures, and utilization of existing compatible corridors.[9] More specifically, the Proposed Project's routes range in length from approximately 44.5 miles to 58.7 miles and range in cost from approximately $98,220,000 to $126,903,000, excluding station costs at Sand Lake and Solstice.[10] The number of habitable structures within 500 feet of the alternative routes ranges from 2 to 66.[11]

Route 320 is approximately 44.5 miles long and is the shortest route filed with the Application.[12] Furthermore, route 320 is estimated to cost $98,220,000, excluding station costs, which is the least expensive alternative route and $28,683,000 less than the most expensive of the 29 routes filed with the Application.[13]

B. Routing Recommendation

Although other routes are worthy of consideration, the Applicants continue to believe that route 320 best meets PURA's requirements and the Commission's rules. In addition to the fact that route 320 is the shortest and least expensive of the routes filed with the Application, other significant factors further highlight why the Commission should select route 320.[14] While route 320 has 38 habitable structures within 500 feet of its centerline, 34 of the structures are temporary mobile living units or temporary office units that are unlikely to be present long term.[15] To the extent that these structures have wheels, they may be moved at a distance in excess of 500 feet

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7 Oncor/AEPTX Ex. 7 (Perkins Direct), Exhibit BJP-5 (routing memorandum).
8 Oncor/AEPTX Ex. 7 at 7-9 (Perkins Direct); Application Attachment No. 1.
9 Oncor/AEPTX Ex. 7 at 7 (Perkins Direct).
10 Oncor/AEPTX Ex. 7 at 7 (Perkins Direct); Application at 4, 6 & Application, Attachment No. 3.
11 Oncor/AEPTX Ex. 7 at 7 (Perkins Direct).
12 Oncor/AEPTX Ex. 7 at 8-9 (Perkins Direct).
13 Oncor/AEPTX Ex. 7 at 8-9 (Perkins Direct).
14 Oncor/AEPTX Ex. 7 (Perkins Direct), Exhibit BJP-5 (routing memorandum).
15 Oncor/AEPTX Ex. 7 (Perkins Direct), Exhibit BJP-5 (routing memorandum); *see* Tr. at 64-65 (Ms. Perkins explaining that the identified habitable structures are "commonly . . . referred to as man camps" that are "very temporary in nature" often with wheels and hitches installed but "no utilities running to these units").

from route 320 as proposed in the Application.[16] Based on a holistic analysis of all relevant routing criteria, route 320 best meets the requirements of PURA and the Commission's rules.[17]

Nevertheless, other routing options discussed in testimony and at the hearing warrant consideration by the Commission. While route 325 is longer and more expensive than route 320, Oxy[18] and COG Operating LLC ("COG") cited as a major concern ongoing and planned oil and gas-related development within the central part of the study area where route 320 is located. Oxy and COG contend that a western route, such as route 325, would pose less interference to their operations.[19] No intervenor opposes route 325's selection. From a construction standpoint, route 325 may be better than route 320 when considering the likelihood of potential engineering constraints that could arise in the more active developmental areas that route 320 crosses.[20]

Commission Staff recommends route 41, which is very similar to route 320 except that route 41 uses Links B1 and C3 near Sand Lake Switch whereas route 320 uses Links B2 and B3. While route 41 directly affects 3 habitable structures (compared to route 320's 38), it is estimated to cost approximately $1.6 million more than route 320. Temporary mobile living units, however, account for 32 of the 35 additional habitable structures that route 320 directly affects compared to route 41. While route 41 is an attractive route, Applicants maintain that route 320 better meets the overall requirements of PURA and the Commission's rules.

The Applicants have also worked with Oxy and COG to develop certain modifications to routes 320 and 325 in order to accommodate oilfield operations and avoid engineering constraints arising from such operations. On route 320, modifications are proposed on links C2, F3/G4/G51/G52, and J1/J7. On route 325, modifications are proposed on links C2, E1/F1 and K11. These modifications are presented in the rebuttal testimony of Mr. Marusak. Applicants do not oppose these modifications provided that Oxy and/or COG obtain necessary consents from the affected landowners. Oxy and COG are in the process of obtaining such consents, and a deadline of March 12, 2019 (the due date for reply briefs) was established by the ALJs for purposes of

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16 Tr. at 122-23 (Staff witness Mr. Bautista agreeing that habitable structures with wheels could be moved at a distance greater than 500 feet from the routes).

17 Oncor/AEPTX Ex. 7 at 7-11 (Perkins Direct).

18 Oxy is comprised of Occidental Permian Ltd.; Oxy Delaware Basin, LLC; Oxy USA Inc.; Oxy USA WTP LP; Houndstooth Resources, LLC; and Occidental West Texas Overthrust, Inc.

19 *See, e.g.*, Oxy Exs. 1 & 2 (Mendoza Direct and Cross-Rebuttal); COG Exs. 1 & 2 (Burkes Direct and Lowery Cross-Rebuttal).

20 Tr. at 48 (Perkins).

considering the route modifications as options for recommendation in the Proposal for Decision ("PFD").

II. PROCEDURAL HISTORY

On November 7, 2018, the Applicants filed the Application and the direct testimony of their witnesses, Brent R. Kawakami ("Kawakami"), Wilson P. Peppard ("Peppard"), Russell J. Marusak ("Marusak"), Thomas J. Reynolds, III ("Reynolds"), and Brenda J. Perkins ("Perkins"). The Commission issued an order of referral and preliminary order on November 14, 2018, referring this matter to SOAH. On November 15, 2018, SOAH Order No. 1 was issued, granting the Applicants' and LCRA TSC's joint motion to consolidate Commission docket numbers 48785 and 48787.[21] Moreover, in addition to granting the Applicants' requested protective order, SOAH Order No. 1 provided notice of a prehearing conference, described jurisdiction, requested a proposed procedural schedule, referenced the statutes and rules involved, established filing and service requirements, informed parties that they were required to file written testimony or a statement of position, emphasized that any party who failed to file written testimony or a statement of position would be dismissed from the proceeding, and provided other information.[22]

On December 10, 2018, SOAH Order No. 2 was issued wherein the administrative law judges ("ALJs") memorialized the prehearing conference held on November 27, 2018, adopted a procedural schedule, and suspended the requirement of traditional service.[23] SOAH Order No. 2 also granted intervenor status to various parties.[24] From January 8-10, 2019, various intervenors filed direct testimony or a statement of position. On January 15, 2019, SOAH Order No. 3 granted intervenor status to additional parties and the withdrawal of a party.[25] Also on January 15, 2019, TPWD filed a letter in the docket with various comments and recommendations regarding the Proposed Project.

The Applicants and LCRA TSC filed a joint letter on January 18, 2019, in compliance with SOAH Order No. 3, identifying the intervenors who did not file direct testimony or a statement of position as of the date of the letter. That same day, Commission Staff filed an objection to and motion to strike portions of certain intervenors' direct testimony. On January 24, 2019, SOAH

21 SOAH Order No. 1 at 3 (Nov. 15, 2018).
22 SOAH Order No. 1 at 3-11 (Nov. 15, 2018).
23 SOAH Order No. 2 at 3-6 (Dec. 10, 2018).
24 SOAH Order No. 2 at 2 (Dec. 10, 2018).
25 SOAH Order No. 3 at 2 (Jan 15, 2019).

Order No. 4 was issued identifying intervenors who failed to file testimony or a statement of position by the January 10, 2019, deadline and proposing to remove these intervenors as parties to the proceeding.[26] On January 30, 2019, SOAH Order No. 5 was issued, which overruled Commission Staff's objections and denied the motion to strike but granted Commission Staff's alternative request, determining that the direct testimony at issue will be considered intervenor statements of concern and given the appropriate evidentiary weight.

Commission Staff filed the direct testimony of its witness, David Bautista ("Bautista"), on January 30, 2019. On February 4, 2019, COG filed the cross-rebuttal testimony of Brent Lowery, and Oxy filed the cross-rebuttal testimony of Albert Mendoza.

On February 6, 2019, the Applicants filed the rebuttal testimony of Mr. Peppard, Mr. Marusak, Mr. Reynolds, and Ms. Perkins. Additionally, the Applicants and LCRA TSC moved to admit the direct testimony of Mr. Kawakami into the evidentiary record because there was no challenge to project need. In conjunction with moving to admit testimony, the Applicants requested cancellation of the need phase hearing on the merits and proposed a prehearing conference in lieu of the need phase hearing. On February 8, 2019, SOAH Order No. 6 was issued, which cancelled the need phase of the hearing on the merits, scheduled a prehearing conference in its place, and admitted Mr. Kawakami's testimony into evidence.

On February 12, 2019, the Applicants filed a joint brief on uncontested issues regarding the Proposed Project. On February 19, 2019, the Applicants and LCRA TSC filed a unanimous stipulation concerning need for both the Sand Lake – Solstice Project and the Bakersfield – Solstice Project, signed by all parties in both cases.

On February 21, 2019, the ALJs conducted a hearing on the merits regarding the Proposed Project.[27] SOAH Order No. 10, issued on February 22, 2019, severed the application for the Bakersfield to Solstice Project from Docket No. 48785 and remanded it to the Commission for consideration of the settlement reached therein.

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26 SOAH Order No. 4 at 1-2 (Jan. 24, 2019).

27 Tr. at 39.

III. JURISDICTION AND NOTICE

The Commission has jurisdiction over this proceeding pursuant to the Public Utility Regulatory Act ("PURA")[28] §§ 14.001, 32.001, 37.051, 37.053, 37.054, and 37.056. SOAH has jurisdiction over this proceeding under PURA § 14.053 and Texas Government Code § 2003.049.

The Applicants have complied with the notice requirements of PURA § 37.054 and 16 TAC § 22.52(a). The Applicants provided written notice of the Proposed Project and held a public meeting on August 15, 2018.[29] A total of nine people signed in as attending the public participation meeting, including one member of the local media and one local official.[30] One person completed a questionnaire at the public meeting, and the local official attendee provided electronic data on City of Pecos water wells and pipelines following the public meeting.[31]

The Applicants provided notice of the Application to neighboring utilities, municipalities, county governments, the Department of Defense Siting Clearinghouse ("DOD"), pipeline owners/operators, and directly affected landowners; provided notice of and a copy of the Application to the Office of Public Utility Counsel ("OPUC"); and provided a copy of Halff's Environmental Assessment and Routing Study ("EA") to the Texas Parks and Wildlife Department ("TPWD").[32] The Applicants also provided notice of the Application by publication in newspapers having general circulation in the counties where the CCN is being requested.[33] The preliminary review by the DOD concluded the project as proposed would have minimal impact on military operations conducted in the area.[34]

Commission Staff recommended that the Applicants' notice be found sufficient on December 6, 2018,[35] and SOAH Order No. 2 approved Applicants' notice based on Commission Staff's recommendations.[36] On January 14, 2019, the Applicants filed a supplemental affidavit and request for approval attesting to re-sent notices provided to certain affected landowners, and SOAH Order No. 4 approved the Applicants' supplemental notice affidavit as compliant with

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28 Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 11.001-58.302 (West 2016 & Supp. 2017), §§ 59.001-66.016 (West 2007 & Supp. 2017).
29 Application at 19.
30 Application at 19.
31 Application at 19-20; Oncor/AEPTX Ex. 5 at 9 (Marusak Direct).
32 Oncor/AEPTX Ex. 2 (notice affidavit); Oncor/AEPTX Ex. 7 at 13-14 (Perkins Direct).
33 Oncor/AEPTX Ex. 3 (newspaper notice affidavit); Oncor/AEPTX Ex. 7 at 12-13 (Perkins Direct).
34 Application, Attachment No. 1, Appendix A at A-41 (DOD letter dated Sept. 17, 2018).
35 Commission Staff's Recommendation on Sufficiency of Notice (Dec. 6, 2018).
36 SOAH Order No. 2 at 2 (Dec. 10, 2018).

Commission rules.[37] No party contested the Applicants' provision of notice. Accordingly, Applicants complied with 16 TAC § 22.52(a)(1)-(4).

IV. ISSUES RELATING TO THE APPLICATION[38]

A. Application and Route Adequacy

1. *Is Oncor Electric Delivery Company LLC and AEP Texas, Inc.'s application to amend their respective CCNs adequate? Does the application contain an adequate number of reasonably differentiated alternative routes to conduct a proper evaluation?*

The Application is both adequate and sufficient as Commission Staff recommended[39] and SOAH Order No. 2 previously determined.[40] It contains 29 geographically diverse routes, more than an adequate number of reasonably differentiated routes from which the Commission may conduct a proper evaluation.[41] Moreover, no party contested the adequacy of the filed routes. Accordingly, the Applicants have satisfied Issue No. 1.

B. Need and Project Alternatives

2. *Are the proposed facilities necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA § 37.056(a) taking into account the factors set out in PURA § 37.056(c)? In addition,*
   a) *How does the proposed facility support the reliability and adequacy of the interconnected transmission system?*
   b) *Does the proposed facility facilitate robust wholesale competition?*
   c) *What recommendation, if any, has an independent organization, as defined in PURA § 39.151, made regarding the proposed facility?*
   d) *Is the proposed facility needed to interconnect a new transmission service customer?*

The undisputed evidence in this case shows the Proposed Project is needed for the service, accommodation, convenience, and safety of the public.[42] ERCOT, an independent organization under PURA § 39.151, endorsed the Proposed Project as critical to the reliability of the ERCOT

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37 SOAH Order No. 4 at 3 (Jan. 24, 2019).

38 The Commission's Order of Referral and Preliminary Order issued on November 14, 2018, lists eight issues that must be addressed in this docket. The Applicants address these issues below irrespective of whether the issues are contested or uncontested. It should be noted, however, that the information and statistics discussed herein regarding the Proposed Project's routes are based on the routes as set forth in the Application. To the extent that certain parties, such as Oxy and COG, acquire landowner consents for requested modifications to any of the routes, the information and statistics discussed herein may need to be revised to account for the modifications.

39 Commission Staff's Recommendation on Sufficiency of Applications (Nov. 26, 2018).

40 SOAH Order No. 2 at 1-2 (Dec. 10, 2018).

41 Oncor/AEPTX Ex. 7 at 12 (Perkins Direct); Oncor/AEPTX Exs. 10A & 10B (hearing maps).

42 Oncor/AEPTX Ex. 9 at 6-9, 18 (Kawakami Direct).

transmission system pursuant to 16 TAC § 25.101(b)(3)(D).[43] Moreover, ERCOT's recommendation is entitled to great weight under 16 TAC § 25.101(b)(3)(A).[44] No party contested the need for the Proposed Project, and Commission Staff likewise recommended approval of the Proposed Project. A unanimous need stipulation has been filed in which all parties confirm their agreement concerning the need for the Proposed Project.[45]

The Proposed Project supports the reliability and adequacy of the ERCOT transmission system in Far West Texas. As stated in the Application and Mr. Kawakami's direct testimony, the Proposed Project is needed both to serve rapidly growing area load—primarily due to oil and gas-related uses in this area of West Texas known as the Delaware Basin—as well as associated economic expansion.[46] The Proposed Project will serve to prevent future thermal and voltage violations on the existing 69 and 138 kV transmission lines serving the area and allow for continued load growth in this region of Texas.[47]

As explained in the Application, without the Proposed Project, unsolved contingencies show an inability of Oncor's current 138 kV transmission system in this area (referred to as the "Culberson Loop") to maintain acceptable voltages following a disturbance, resulting in potential voltage collapse along these lines where customers already experience pre-contingency voltage stability issues.[48] ERCOT's independent review of the project likewise found voltage violations under established reliability criteria.[49] Such scenarios could cause all load on the lines in the area to be dropped.[50] Between 2012 and 2017, the load on the nearby Culberson Loop lines rose from 29.3 megawatts ("MW") to 246.4 MW.[51] As of October 2018, the highest recorded real-time value based on telemetry data is 395 MW.[52] Based solely on actual load increases for Oncor substations and confirmed customer load increases (based on financially committed customer contracts), loads on the Culberson Loop lines are expected to increase significantly, with projected 2019 non-coincident summer peak load on these lines of 902 MW, and ultimately 1,549 MW of projected

43 Oncor/AEPTX Ex. 9 at 18 (Kawakami Direct).
44 Oncor/AEPTX Ex. 9 at 18-19 (Kawakami Direct).
45 Oncor/AEPTX Ex. 15.
46 Oncor/AEPTX Ex. 9 at 6-7 (Kawakami Direct).
47 Oncor/AEPTX Ex. 9 at 8-11 (Kawakami Direct).
48 Application at 10; Oncor/AEPTX Ex. 9 at 15-18 (Kawakami Direct).
49 Oncor/AEPTX Ex. 9 at 8-10 (Kawakami Direct).
50 Application at 10; Oncor/AEPTX Ex. 9 at 8-10 (Kawakami Direct).
51 Oncor/AEPTX Ex. 9 at 6 (Kawakami Direct).
52 Oncor/AEPTX Ex. 9 at 6 (Kawakami Direct).

non-coincident summer peak load on these lines by 2022.[53] If the load projection parameters are expanded to take into account pending requests that are currently being studied and contractually negotiated between Oncor and customers, there is a probable likelihood of even further growth for non-coincident summer peak loads; current projections estimate that, for 2020, the non-coincident summer peak load grows to 1,406 MW; for 2021, it grows to 1,563 MW; and for 2022, it grows to 1,639 MW.[54]

In April 2016, Oncor and AEP Texas submitted for review by ERCOT's Regional Planning Group ("RPG"), an independent organization under PURA § 39.151, a suite of projects known as the "Far West Texas Project."[55] ERCOT performed steady state and dynamic stability power flow studies during its independent review of the Far West Texas Project and found multiple violations under North American Electric Reliability Corporation ("NERC") Reliability Standard TPL-001-4.[56] ERCOT's steady state analysis when reviewing the Far West Texas Project identified the following violations: thermal violations on multiple lines in the Barilla Junction Area under single contingencies in both generation cases it studied; unsolvable contingencies; and various voltage violations and unacceptable voltage deviations in the Culberson Loop under one or both cases studied.[57] ERCOT conducted detailed analyses and tests of four short-listed options and, in June 2017, ERCOT's Board of Directors endorsed construction of, among other things, a new 345 kV transmission line extending from Bakersfield to Solstice, to be built by LCRA TSC and AEP Texas on double-circuit-capable 345 kV structures with one 345 kV circuit initially installed, and expansion of Solstice Switch to include the installation of a 345 kV ring-bus arrangement with two 600 MVA, 345/138 kV autotransformers.[58]

In February 2018, Oncor submitted a suite of projects known as the "Far West Texas Project 2" to the ERCOT RPG.[59] ERCOT conducted an independent review of the Far West Texas Project 2, found multiple reliability violations under NERC Reliability Standard TPL-001-4, and conducted detailed analyses of three short-listed options.[60] In June 2018, ERCOT's Board of Directors endorsed construction of, among other things, a variation of the proposed Far West Texas

53 Oncor/AEPTX Ex. 9 at 6-7 (Kawakami Direct).
54 Oncor/AEPTX Ex. 9 at 7 (Kawakami Direct).
55 Oncor/AEPTX Ex. 9 at 9 (Kawakami Direct).
56 Oncor/AEPTX Ex. 9 at 10-11 (Kawakami Direct).
57 Oncor/AEPTX Ex. 9 at 10-11 (Kawakami Direct).
58 Oncor/AEPTX Ex. 9 at 11-13 (Kawakami Direct).
59 Oncor/AEPTX Ex. 9 at 14 (Kawakami Direct).
60 Oncor/AEPTX Ex. 9 at 14-18 (Kawakami Direct).

Project 2 to include the Sand Lake-Solstice double-circuit 345 kV line, expansion of Sand Lake Switch and additions at Solstice Switch, and a second circuit on the Bakersfield-Solstice line, and it endorsed them as Tier 1 transmission projects needed to support the reliability of the ERCOT transmission system.[61] Further, ERCOT's Board of Directors endorsed the proposed transmission facilities as critical to the reliability of the ERCOT transmission system pursuant to 16 TAC § 25.101(b)(3)(D).[62]

ERCOT determined that the Proposed Project will meet the necessary reliability criteria in the most cost effective manner while also providing multiple expansion paths to accommodate future load growth in the study area.[63]

The Proposed Project facilitates robust wholesale competition by facilitating the delivery of economical electric power at 345 kV from existing and future generation resources located both inside and outside of the area to existing and future electric customers in the area. It will also provide 345 kV transmission service to an area that is not currently served at this voltage.[64]

The need for the Proposed Project is rapid load growth. This load growth is primarily due to oil and natural gas production, processing, and transportation, as well as associated economic expansion in the area as shown in the historical and projected load growth figures.[65] As discussed *supra*, Applicants project this strong load growth to continue.[66] Given this growth, the Proposed Project will serve many new customers and improve reliability to existing customers in West Texas.

Under PURA § 37.056(c), the Proposed Project is necessary to serve current and projected load that the existing transmission service in the area cannot handle without reliability violations. Approving the Proposed Project would greatly assist the Applicants and other utilities serving this area of West Texas in meeting the rapidly growing needs of electric consumers. Accordingly, Applicants have satisfied Issue No. 2.

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61 Oncor/AEPTX Ex. 9 at 18 (Kawakami Direct).
62 Oncor/AEPTX Ex. 9 at 18-19 (Kawakami Direct).
63 Oncor/AEPTX Ex. 9 at 17-18 (Kawakami Direct).
64 Oncor/AEPTX Ex. 9 at 18 (Kawakami Direct).
65 Oncor/AEPTX Ex. 9 at 6 (Kawakami Direct).
66 Oncor/AEPTX Ex. 9 at 6-7 (Kawakami Direct) (showing that projected load growth on Culberson Loop—based only on financially committed customer contracts—will reach 1,597 MW by 2023).

3. *Is the transmission project the better option to meet this need when compared to employing distribution facilities? If Oncor Electric Delivery Company LLC and AEP Texas, Inc. [are] not subject to the unbundling requirements of PURA § 39.051, is the project the better option to meet the need when compared to a combination of distributed generation and energy efficiency?*

As stated in the Application and Mr. Kawakami's direct testimony, the Proposed Project is superior to any distribution alternatives because such alternatives would not improve the reliability and operational capacity of the transmission system in the area.[67] Distribution lines are not practical alternatives to the Proposed Project in addressing the identified reliability needs of the transmission system because they would not improve the reliability and operational capability of the transmission system, and thus a distribution option is not feasible.[68] All existing transmission facilities in the study areas were constructed and operate at 138 kV, and serve customers directly; thus, upgrading of voltage would require all customers and existing stations to be rebuilt in order to be served from 345 kV.[69] Conductor bundling would not address the reliability and operational issues under the contingencies of concern since any bundled circuits would necessarily be located on the same structures as the existing 138 kV lines in the area.[70] Additionally, bundling conductors does not provide bi-directional looped service capability which is needed to address the reliability and operational flexibility for existing and future customers.[71] Adding transformers would not address the reliability and operational issues under the contingency of concern since new 345/138 kV transformers within the Culberson Loop would still be served from the planned Odessa EHV-Riverton / Moss-Riverton 345 kV transmission line.[72] Further, the Applicants are not subject to the unbundling requirements of PURA § 39.051, and consequently the second aspect of this issue is not applicable.

Additionally, ERCOT studied three primary options in its independent review of the Far West Texas Project 2, and each of those options included the Sand Lake – Solstice line because ERCOT considered it a universal upgrade to accommodate future projects and allow for additional load growth on the Culberson Loop.[73] Alternative pathways for the Proposed Project (*i.e.*, options for connecting stations other than Sand Lake and Solstice with a 345 kV line) were rejected

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67 Application at 17; Oncor/AEPTX Ex. 9 at 22-23 (Kawakami Direct).
68 Application at 17; Oncor/AEPTX Ex. 9 at 22-23 (Kawakami Direct).
69 Oncor/AEPTX Ex. 9 at 23 (Kawakami Direct).
70 Oncor/AEPTX Ex. 9 at 23 (Kawakami Direct).
71 Oncor/AEPTX Ex. 9 at 23 (Kawakami Direct).
72 Oncor/AEPTX Ex. 9 at 23 (Kawakami Direct).
73 Oncor/AEPTX Ex. 9 at 21-22 (Kawakami Direct).

because they would not provide an optimal location for the strong voltage source to address the identified criteria violations under the contingencies required to be studied.[74] Accordingly, Applicants have satisfied Issue No. 3.

V. ROUTE SELECTION

4. Which proposed transmission line route is the best alternative weighing the factors set forth in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B)?

A. Overview

Ms. Perkins discusses the Applicants' recommendation of route 320 in her routing memorandum and her direct and rebuttal testimonies.[75] Route 320 consists of Links A-B2-B3-C2-D2-F3-G4-G51-I2-J1-J7-L1-Z.[76] Based on the factors set forth in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B), Applicants concluded that route 320 best meets those routing considerations. Specifically, route 320:

- Is approximately 44.5 miles long, which is the shortest route and approximately 14.2 miles shorter than the longest alternative route filed with the Application;
- Is estimated to cost $98,220,000, excluding station costs, which is $28,683,000 less than the most expensive alternative route filed with the Application;
- Has zero habitable structures within the proposed ROW;
- Has 38 habitable structures reported to be within 500 feet of its centerline, which is 28 less than the filed route with the most number of habitable structures within 500 feet;
    - Of the 38 habitable structures within 500 feet of route 320, 32 of those habitable structures are mobile living units that appear to be temporary construction housing, none of which appear to have permanent foundations;
    - Of the 38 habitable structures within 500 feet of route 320, two of those habitable structures are mobile office units that appear to be temporary support units for the construction site of a surrounding solar facility;
- Parallels existing compatible ROW and apparent property boundaries for approximately 27.2% of its length, which is more than the 17.3% of the route least frequently paralleling compatible corridors.[77]

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74 Oncor/AEPTX Ex. 9 at 22 (Kawakami Direct).

75 Application, Attachment 12; Oncor/AEPTX Ex. 7 at 8-11 (Perkins Direct); Oncor/AEPTX Ex. 13 at 3-5 (Perkins Rebuttal).

76 Application, Attachment 1, Appendix D, Table 7-1 at D-10.

77 Oncor/AEPTX Ex. 7 at 8-10 (Perkins Direct).

A table summarizing the data related to all PURA § 37.056(c) factors for each alternative route is included in Perkins' memorandum attached to the Application.[78]

Forrister Generation-Skipping Trust and Alan Zeman, each parties to this proceeding, support route 320. Additional parties either prefer route 320 (with certain modifications) or do not oppose route 320 (*e.g.*, Plains Marketing L.P. and Plains Pipeline, L.P.). The following parties, while not explicitly opposing route 320, argued for the adoption of alternate routes: (1) Oxy; (2) Commission Staff; and (3) TPWD. The Applicants have also worked with Oxy and COG to develop certain modifications to the filed routes in order to accommodate oilfield operations and avoid engineering constraints arising from such operations. Assuming all necessary landowner consents are acquired, the Applicants do not oppose Oxy and COG's proposed modifications to route 320, route 325, or any other route. Similarly, the Applicants are unopposed to Commission Staff's recommended route 41. Notwithstanding these proposed modifications and recommended alternate routes, however, the evidence shows route 320 as proposed within the Application best meets the factors set forth in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B). Comparable alternative route information for all 29 alternative routes filed in the Application is provided in Attachment 1 to the Application in Appendix E, F, and G. Route information for modified routes 320 and 325, among others, is included in Applicants' rebuttal testimony.[79]

B. Adequacy of Existing Service and Need for Additional Service

The Proposed Project is needed for three reasons: (1) to support load growth in the area; (2) to address reliability violations under ERCOT reliability criteria and NERC reliability standards; and (3) to provide the infrastructure necessary to facilitate future transmission system expansion and generation development.[80] Oncor submitted a suite of projects known as "Far West Texas Project 2" to ERCOT's Regional Planning Group in February 2018.[81] In its independent review, ERCOT initially evaluated numerous alternatives, and it subsequently endorsed one of three short-listed options, each of which included the Sand Lake – Solstice 345-kV line.[82] Approximately four months later, the ERCOT Board of Directors endorsed a variation of the proposed Far West Texas Project 2, which included the Proposed Project as a Tier 1 transmission

78 Application, Attachment 12, Table 2.

79 Oncor/AEPTX Ex. 11 at Exhibits RJM-R-1 through RJM-R-7 (Marusak Rebuttal) (environmental data); Oncor/AEPTX Ex. 12 at 11-12 (Peppard Rebuttal) (cost estimates).

80 Oncor/AEPTX Ex. 9 at 6, 19 (Kawakami Direct).

81 Oncor/AEPTX Ex. 9 at 14 (Kawakami Direct).

82 Oncor/AEPTX Ex. 9 at 17-18 (Kawakami Direct).

project needed to support the reliability of the ERCOT transmission system.[83] Furthermore, the ERCOT Board of Directors adopted a resolution endorsing the Proposed Project as critical to the reliability of the ERCOT transmission system pursuant to 16 TAC § 25.101(b)(3)(D).[84]

As discussed above, the Proposed Project will deliver 345-kV transmission to an area that is not currently served at this voltage and also will address critical reliability issues resulting from rapid load growth in an area of oil and natural gas development and associated economic expansion.[85] That is, the Proposed Project will support load growth in the area, address reliability violations under ERCOT protocols and NERC reliability standards, and provide infrastructure necessary to facilitate future transmission system expansion.[86] Consequently, the Proposed Project is needed to address reliability violations and will also serve to improve service for new and existing customers in the area.

As noted above, no party contested the need for the Proposed Project, and Commission Staff likewise recommended approval of the Proposed Project. A unanimous need stipulation has been filed in which all parties confirm their agreement concerning the need for the Proposed Project.

C. Public Input and Community Values

The Proposed Project area generally consists of rural, undeveloped land used primarily for oil and gas production, livestock grazing, and irrigated crop production.[87] A public open house meeting for the Proposed Project was held in Pecos, Texas on August 15, 2018, in accordance with 16 TAC § 22.52.[88] A total of 775 individual written notices of the public open house meeting were sent to all property owners within 500 feet of the centerline of the preliminary alternative routes for the Proposed Project.[89] On August 9, 2018, notice of the public open house meeting was published in the *Fort Stockton Pioneer*, a local newspaper of general circulation in Pecos County; the *Monahans News*, a local newspaper of general circulation in Ward County; and the *Pecos*

83 Oncor/AEPTX Ex. 9 at 14 (Kawakami Direct).
84 Oncor/AEPTX Ex. 9 at 18 (Kawakami Direct).
85 Oncor/AEPTX Ex. 9 at 24 (Kawakami Direct).
86 Oncor/AEPTX Ex. 9 at 24 (Kawakami Direct).
87 Application at 5.
88 Application at 19.
89 Application at 19.

Enterprise, a local newspaper of general circulation in Reeves County.[90] Oncor, on behalf of the Applicants, provided notice of the public open house meeting to the DOD.[91]

Based on information Halff received at and following the public meeting—including a questionnaire submitted by a meeting attendee, electronic data received by a local official meeting attendee, and additional reconnaissance surveys—portions of thirty-six existing preliminary route links were modified, and several were divided for a net increase of five alternative links.[92] The preliminary link modifications were made to, among other reasons, accommodate the City of Pecos water facilities, new oil and gas facilities, and other new construction.[93]

D. Structures: Transmitters, Airports, Airstrips, and Irrigation Systems

No known commercial AM radio transmitters were identified within 10,000 feet of the centerline of route 320.[94] Moreover, there are no FM, microwave, and other electronic installations located within 2,000 feet of the centerline of route 320.[95] There are no FAA-registered airports without a runway greater than 3,200 feet in length and within 10,000 feet of the centerline of route 320, or any other alternate route within the Application.[96] Likewise, there are no FAA-registered airports with at least one runway greater than 3,200 feet in length within 20,000 feet of route 320's centerline.[97] There are neither private airstrips within 10,000 feet of the centerline of the alternative routes nor heliports within 5,000 feet of the centerline of any of the alternative routes—including route 320.[98]

With the exception of routes 370 and 404—each of which cross 3,043 feet of agricultural cropland with mobile irrigation systems—none of the alternative routes impact any agricultural cropland with mobile irrigation systems.[99] Route 320 does not cross any agricultural cropland with mobile irrigation systems.[100]

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90 Application at 19.
91 Application at 19.
92 Application at 19; Oncor/AEPTX Ex. 5 at 9 (Marusak Direct).
93 Oncor/AEPTX Ex. 5 at 9-10 (Marusak Direct); Application Attachment No. 1 at § 6.0.
94 Application, Attachment 12, Table 2.
95 Application, Attachment 12, Table 2.
96 Application, Attachment 12, Table 2.
97 Application, Attachment 12, Table 2.
98 Application, Attachment 12, Table 2.
99 Application, Attachment 12, Table 2.
100 Application, Attachment 12, Table 2.

E. Park and Recreational Areas

None of the alternative routes, including route 320, directly cross any park or recreational areas.[101] Similarly, no parks or recreational areas are located within 1,000 feet of the centerline of any of the alternative routes.[102] Therefore, no significant impacts to the use of the parks and recreation facilities are anticipated as a result of the Proposed Project.

F. Historical, Cultural, and Aesthetic Values

1. Historical, Archeological, or Cultural Resources

The number of previously recorded cultural resource sites crossed by an alternative route ranges from zero to two, and route 320 does not cross any previously recorded cultural resource site.[103] Route 325 crosses one previously recorded cultural resource site while route 41 crosses no such sites.[104]

2. Aesthetic Values

The length of the alternative routes within the foreground visual zone of U.S. and state highways ranges from 14,222 to 32,979 feet.[105] Route 320 and route 41 have 20,298 feet within the foreground visual zone of U.S. and state highways.[106] Route 325 has 32,979 feet within the foreground visual zone of U.S. and state highways.[107]

G. Environmental Integrity

The EA analyzed the Proposed Project's possible impacts based on numerous environmental factors.[108] The Applicants and Halff, moreover, performed an evaluation of the impacts of the Proposed Project on the environment, including endangered and threatened species.[109]

During the construction of the Proposed Project, the Applicants will, among other things, minimize the amount of flora and fauna disturbed, re-vegetate cleared and disturbed areas using native species and consider landowner preferences in doing so, exercise extreme care to avoid affecting non-targeted vegetation or animal life, and use best management practices to minimize

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101 Application, Attachment 12, Table 2.
102 Application, Attachment 12, Table 2.
103 Application, Attachment 12, Table 2.
104 Application, Attachment 12, Table 2.
105 Application, Attachment 12, Table 2.
106 Application, Attachment 12, Table 2.
107 Application, Attachment 12, Table 2.
108 Application at 17-18.
109 Application, Attachment No. 1 at §§ 3.5.1.4 & 3.5.2.4.

the potential impact to migratory birds and threatened or endangered species.[110] Additionally, the Applicants will implement erosion control measures and return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowners.[111]

Commission Staff witness Mr. Bautista recommends in his direct testimony that the Applicants should follow standard mitigation measures to address the TPWD's concerns regarding the Application.[112] He further concluded that the Applicants have the resources and procedures in place to accommodate the TPWD's mitigation recommendations.[113] The Applicants agree that the Commission should include the standard mitigation measures in its order for the Application because they are reasonable.[114] TPWD's additional recommendations above and beyond the standard mitigation measures, however, are not necessary, operationally practical, and/or do not consider all factors set forth in PURA § 37.056 and 16 TAC § 25.101.[115] Accordingly, the additional TPWD recommendations should not be adopted in the Commission's ordering paragraphs.

H. Probable Improvement of Service or Lowering of Costs to Consumers

The proposed transmission facilities will not adversely affect other utilities' service in the area and will improve system reliability in the area.[116] Moreover, the Proposed Project is needed to satisfy reliability and load growth issues in the project area, and it will result in improved service to electric customers.[117]

I. Engineering Constraints

The area encompassing the Proposed Project is undergoing rapid development in energy infrastructure that may give rise to engineering constraints encountered during project design and construction, as Oxy and COG both attest.[118] Applicants respect the Commission's recent

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110 Oncor/AEPTX Ex. 12 at 14-16, 19 (Peppard Rebuttal); Staff Ex. 2 at 11-14 (Bautista Direct).
111 Oncor/AEPTX Ex. 12 at 18 (Peppard Rebuttal); Staff Ex. 2 at 13 (Bautista Direct).
112 Staff Ex. 2 at 11-14 (Bautista Direct).
113 Staff Ex. 2 at 11 (Bautista Direct).
114 Oncor/AEPTX Ex. 12 at 19 (Peppard Rebuttal).
115 Oncor/AEPTX Ex. 12 at 14, 19-20 (Peppard Rebuttal).
116 Oncor/AEPTX Ex. 9 at 19 (Kawakami Direct).
117 *See, e.g.*, Oncor/AEPTX Ex. 9 at 24 (Kawakami Direct).
118 *See, e.g.*, Tr. at 89-90 (Oxy witness Mr. Mendoza testifying that Oxy is "[a]bsolutely" supportive of the Commission granting flexibility to modify the approved route because it "is needed to make adjustments" in light of project area producers' common practice of installing "a well within a short period of time"); Tr. at 101-03 (COG witness Mr. Lowery stating that the Commission's adoption of such language regarding flexibility for engineering constraints "would be very beneficial to everyone involved if . . . granted").

decisions re-affirming its policy on engineering constraints.[119] To the extent the Commission elects to consider a narrower grant of post-approval routing flexibility to avoid engineering constraints, Applicants believe such limited flexibility could be reasonably restricted to situations in which (1) the modification is implemented only to the minimal extent necessary to avoid the engineering constraint; (2) the utility employs good utility practice; (3) the modification is located on a property without habitable structures; and (4) the property is used primarily for oil and gas related purposes.[120] Narrowly-tailored flexibility to address constraints could reduce the risk of delaying this critical reliability project, should such constraints arise.

J. Costs

Route 320 is the least expensive of the alternative routes and is estimated to cost $98,220,000, excluding station costs.[121] Route 320 is $28,683,000 less than the most expensive alternative route.[122] Excluding station costs, the estimated cost of route 325 is $116,382,000, and the estimated cost of route 41 is $99,818,000.[123]

Oncor estimates the modifications at Sand Lake Switch relating to the Proposed Project will cost approximately $17.6 million.[124] AEP Texas estimates the modifications to Solstice Switch relating to the Proposed Project will cost approximately $10.1 million.[125]

Oncor intends to finance its portion of the transmission facilities with a combination of debt and equity in compliance with its authorized capital structure.[126] AEP Texas intends to finance its portion of the transmission facilities with a combination of debt and equity.[127]

Applicants propose splitting ownership of the Proposed Project into two equal parts, with each party to own and operate its respective portion.[128] If route 320 as filed in the Application is selected by the Commission, ownership would be divided at the node of Links G4 and G51, with

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119 *See, e.g., Joint Application of Oncor Electric Delivery Company LLC and Brazos Electric Cooperative, Inc. to Amend Certificates of Convenience and Necessity for the Cogdell to Clairemont 138-kV Transmission Line in Kent and Scurry Counties*, Docket No. 47808, Order at 1 (deleting findings of fact relating to engineering constraints).

120 Oncor/AEPTX Ex. 12 at 11 (Peppard Rebuttal).

121 Oncor/AEPTX Ex. 7 (Perkins Direct), Exhibit BJP-5 (routing memorandum).

122 Oncor/AEPTX Ex. 7 (Perkins Direct), Exhibit BJP-5 (routing memorandum).

123 Application, Attachment No. 3.

124 Application, Attachment No. 3.

125 Application, Attachment No. 3. The estimate shown for additions at AEP Texas' Solstice Switch are for upgrades to interconnect the transmission line from Sand Lake in this case, and do not include substation costs associated with the AEP Texas/LCRA TSC line from Bakersfield Station to Solstice Switch that are separately addressed in Docket No. 48787. Application at 9.

126 Application at 8.

127 Application at 8.

128 Application at 9; Oncor/AEPTX Ex. 6 at 4 (Peppard Direct).

AEP Texas owning the dividing structure and the portion of the project progressing towards Solstice Switch, and Oncor owning the portion of the project progressing towards Sand Lake Switch.[129]

K. Moderation of Impact on Affected Community and Landowners

The Applicants worked with Oxy and COG to assist them in developing numerous modifications to the Proposed Project based on concerns about impacts to their ongoing and future oil and gas operations. Applicants have not conducted on-the-ground surveys of the locations of these requested modifications, have not physically accessed those properties, and have not personally visited the areas where the modifications are located since Oxy and COG made their requests.[130] With this limited knowledge, the Applicants are unaware of any engineering constraints or construction impediments affecting the proposed route modifications that could not be resolved through additional consideration by the Applicants during the design and construction phase of the Proposed Project.[131] Based on the available data, therefore, Applicants are not opposed to the proposed modifications to the extent Oxy and COG obtain applicable landowner consents.[132] A deadline of March 12, 2019 (the due date for reply briefs) was established by the ALJs for purposes of considering the route modifications as options for recommendation in the PFD.

In an effort to further assist the Commission in assessing these requested modifications, Exhibit RJM-R-7 to Mr. Marusak's rebuttal testimony contains updated environmental assessment data to the extent that the proposed modifications applicable to the primary alternative routes in contention are adopted.[133] Mr. Peppard's rebuttal testimony contains data on the changes to estimated project costs that would result from adoption of each requested modification.[134]

L. Use of Compatible ROWs, Paralleling of Existing ROWs, and Paralleling of Property Lines

Route 320 is parallel to existing compatible corridors, including existing transmission lines, public roads and highways, railroads, and apparent property boundaries, for approximately 27.2% of its length.[135] The range of alternative routes paralleling existing compatible ROW is

129 Oncor/AEPTX Ex. 6 at 4 (Peppard Direct).
130 Oncor/AEPTX Ex. 12 at 11 (Peppard Rebuttal).
131 Oncor/AEPTX Ex. 12 at 11-12 (Peppard Rebuttal).
132 Oncor/AEPTX Ex. 13 at 5 (Perkins Rebuttal).
133 Oncor/AEPTX Ex. 11 at 12 (Marusak Rebuttal) & Exhibit RJM-R-7.
134 Oncor/AEPTX Ex. 12 at 12 (Peppard Rebuttal).
135 Application, Attachment 12.

17.3% to 48.7%.[136] Routes 325 and 41 parallels existing compatible ROW for approximately 48.7% and 26.6% of their lengths, respectively.

M. Prudent Avoidance

The term "prudent avoidance" is defined in 16 TAC § 25.101(a)(6) as the "limiting of exposures to electric and magnetic fields that can be avoided with *reasonable* investments of money and effort." Routes 320, 325 and 41 all comport with the Commission's policy of prudent avoidance.

The term "habitable structure" is defined in 16 TAC § 25.101(a)(3) to include "mobile homes." While route 320 has 38 habitable structures within 500 feet of the route centerline, 34 of these 38 structures are mobile living or office units that are temporarily in place and appear to have no permanent foundations.[137] That is, the 32 mobile living units are of the travel trailer style, and the two office units are prefabricated mobile units.[138] Quantitatively, these structures qualify as habitable structures for purposes of counting the number of habitable structures affected.

When considering prudent avoidance, however, quantifying habitable structures within 500 feet of route 320's right-of-way should not be the sole consideration. A qualitative analysis could be viewed from two different angles: the certainty of which exposures would actually be limited, and the reasonableness of the costs and efforts associated with avoiding such exposures given the temporary nature of the structures involved. Along route 320, 34 of the 38 habitable structures it directly affects are temporary mobile units.[139] Oftentimes, these types of habitable structures in the Proposed Project's area are referred to as "man camps" that are very temporary in nature and tend to abruptly vacate the area.[140] As shown in Exhibit BJP-6 to Ms. Perkins' direct testimony, these mobile living units have wheels, hitches, and no utilities running to them.[141] Given the temporary nature of the 34 temporary units that route 320 crosses, one question for the Commission to consider is whether route 320's proximity to these temporary structures justifies increased project costs in selecting another route, such as route 41.[142]

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136 Application, Attachment 12.

137 Application, Attachment 12. With respect to route 325 and route 41, the number of habitable structures within 500 feet of the route centerline is thirty-seven and three, respectively.

138 Application, Attachment 12.

139 Tr. at 64-65 (Ms. Perkins testifying that in Oncor's experience in an area near and similar to the Proposed Project, these types of identified mobile units may decrease in number by a third within two weeks' time).

140 Tr. at 64-65 (Perkins).

141 Oncor/AEPTX Ex. 7 (Perkins Direct), Exhibit BJP-6; Tr. at 64 (Perkins).

142 Route 320 is estimated to be the least expensive route. *See* Application, Attachment No. 3.

On behalf of Applicants, Ms. Perkins recommended route 320 as best meeting the overall requirements of PURA and the Commission's rules, including the policy of prudent avoidance, based in part on the temporary nature of the vast majority of the habitable structures route 320 crosses.[143] As discussed above, the Commission need not limit its consideration of prudent avoidance to a quantitative analysis alone; it should also make a qualitative analysis regarding (1) the permanence of the habitable structures along a route and (2) whether the costs associated with avoiding potential exposures are justified given the temporary nature of the structures involved. Applying this analysis—when also taking into account all other pertinent considerations, including but not limited to cost and route length, under PURA and the Commission's rules—route 320 satisfies the Commission's policy of prudent avoidance.[144]

As shown in the preceding sections, the Applicants have satisfied Issue No. 4.

N. Alternative Routes or Facility Configurations

1. Specific Alternatives and Cost

5. Are there alternative routes or facilities configurations that would have a less negative impact on landowners? What would be the incremental cost of those routes?

As noted above, Oxy and COG requested modifications to various links or link segments, and Applicants worked with Oxy and COG to refine such potential modifications. While Applicants are unopposed to the proposed modifications, these modifications require consent from affected landowners. The record evidence at this time does not show that either Oxy or COG has obtained landowner consents for any of their requested modifications. Accordingly, Applicants continue to believe that route 320, as proposed in the Application, best meets the requirements of PURA and the Commission's rules. Unless and until Oxy and COG obtain these consents, the ALJs and the Commission should limit their consideration to the route as filed in the Application.

Nevertheless, the rebuttal testimonies of Mr. Peppard and Mr. Marusak thoroughly address the modified routes' impact on cost and the environment. Mr. Peppard's rebuttal testimony details how each of the proposed modifications would impact the Proposed Project's estimated cost.[145] Specifically, the requested modification to Link C2 increases cost by approximately $906,000. The requested modification to Links F3/G4/G51/G52 would not impact the project's estimated

143 Tr. at 64-65, 67 (Perkins); Oncor/AEPTX Ex. 7 at 8-10 (Perkins Direct).
144 Application, Attachment 12.
145 Oncor/AEPTX Ex. 12 at 12 (Peppard Rebuttal).

cost. The requested modification to Links J1/J7 would increase cost by approximately $600,000. The requested modification to Links E1/F1 decreases cost by approximately $180,000. The requested modification to Link D31 would not impact the project's estimated cost. The requested modification to Link K11 increases cost by approximately $68,000.

Accordingly, the Applicants have satisfied Issue No. 5.

2. Landowner Contributions

6. *If alternative routes or facility configurations are considered due to individual landowner preference:*

   a) *Have the affected landowners made adequate contributions to offset any additional costs associated with the accommodations?*

   b) *Have the accommodations to landowners diminished the electric efficiency of the line or reliability?*

Nothing in the record suggests that the parties requesting route modification have made, or are willing to make, contributions to offset any additional costs associated with the modifications. However, as noted above, the cumulative cost of the modifications is relatively modest in relation to the Proposed Project's overall estimated cost. Nothing in the record suggests that the requested modifications would diminish the electric efficiency or reliability of the line. Accordingly, the Applicants have satisfied Issue No. 6.

VI. TEXAS PARKS AND WILDLIFE DEPARTMENT

7. *On or after September 1, 2009, did the Texas Parks and Wildlife Department provide any recommendations or informational comments regarding this application pursuant to Section 12.0011(b) of the Texas Parks and Wildlife Code? If so, please address the following issues:*

   a) *What modifications, if any, should be made to the proposed project as a result of any recommendations or comments?*

   b) *What conditions or limitations, if any, should be included in the final order in this docket as a result of any recommendations or comments?*

   c) *What other disposition, if any, should be made of any recommendations or comments?*

   d) *If any recommendation or comment should not be incorporated in this project or the final order, or should not be acted upon, or is otherwise inappropriate or incorrect in light of the specific facts and*

circumstances presented by this application or the law applicable to contested cases, please explain why that is the case.

TPWD's comment letter recommends certain construction practices, such as fencing, covering, soil stabilization, and species exclusion techniques, as well as facility modifications such as bird diverters and covered energized components. These recommendations and Applicants' incorporation of many of them as part of their standard practices are detailed in Mr. Peppard's and Mr. Reynolds' rebuttal testimonies.[146] Some of TPWD's recommendations are impractical and would substantially impair the construction timeline of this critical reliability project. One such example is TPWD's recommendation to refrain from clearing activities for approximately six months of the year.[147] TPWD further recommends certain practices associated with migratory birds as well as threatened, endangered, and rare species. Applicants will comply with the Migratory Bird Treaty Act, the Endangered Species Act, and other applicable federal and state laws pertaining to these species.[148]

TPWD's comment letter addressed issues relating to impacts on ecology and the environment, but did not consider other factors the Commission and the Applicants must consider in CCN applications.[149] Consistent with the testimony of Commission Staff witness Mr. Bautista, the ordering paragraphs historically adopted by the Commission in transmission line CCN cases should be adopted in this case, including those relating to environmental issues.[150] To the extent TPWD made other or more expansive recommendations or comments, they should be disregarded as either impractical or inconsistent with PURA § 37.056(c) or 16 TAC § 25.101.[151]

TPWD recommended route 324, arguing that it appears to best minimize adverse impacts to natural resources while maintaining a shorter route length and paralleling existing corridors for a portion of the route.[152] While the Applicants respect TPWD's recommendation, it did not take into consideration all factors set forth in PURA § 37.056(c) or 16 TAC § 25.101 as the Applicants are required to do.[153] As a result, the Applicants disagree that the Commission should select route 324 as the route best meeting the routing guidelines in PURA and the Commission's rules.

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146 Oncor/AEPTX Ex. 12 at 12-20 (Peppard Rebuttal); Oncor/AEPTX Ex. 14 at 9-11 (Reynolds Rebuttal).
147 Oncor/AEPTX Ex. 12 at 15 (Peppard Rebuttal).
148 Oncor/AEPTX Ex. 12 at 17 (Peppard Rebuttal).
149 TPWD Letter at 4 (Jan. 15, 2019).
150 Oncor/AEPTX Ex. 12 at 15, 17 (Peppard Rebuttal).
151 Oncor/AEPTX Ex. 12 at 14, 19-20 (Peppard Rebuttal).
152 TPWD Letter at 5 (Jan. 15, 2019).
153 Oncor/AEPTX Ex. 12 at 14 (Peppard Rebuttal).

In sum, as detailed above, the Applicants are amenable to adopting many of TPWD's recommendations for the Proposed Project as many of them are already standard practice.[154] The Applicants agree with Commission Staff witness Mr. Bautista's recommendation that standard mitigation measures should be followed and will sufficiently address the TPWD's concerns regarding the Application.[155] The Commission should include the standard mitigation measures in its order for the Application to address TPWD's concerns.[156] Accordingly, the Applicants have satisfied Issue No. 7.

VII. OTHER ISSUES

8. Are the circumstances for this line such that the seven-year limit discussed in section III of this order should be changed?

The default seven-year limit should be sufficient for the Applicants to safely and reliably construct and energize the line. Should additional time be required, the Applicants will request an extension from the Commission in advance. Accordingly, the Applicants have satisfied Issue No. 8.

VIII. CONCLUSION

Among the three primary routes discussed at the hearing, route 320 remains the route that best meets the routing factors under PURA and the Commission's rules for the reasons discussed throughout this Brief. Route 325 is also an attractive choice, no party has expressed opposition to it, and it is located in the western portion of the study area where the record shows less oil and gas development is occurring; ; however, the cost is estimated at $18,162,000 more than route 320 as filed in the Application. Therefore, route 325 may present less potential engineering constraints than routes 320 or 41 and less potential impact on development of oil and gas resources in the area, but it comes with a higher estimated cost. Route 41 is very similar to route 320, but it is longer and increases project costs by approximately $1.6 million in order to avoid directly affecting a series of temporary mobile units commonly called "man camps" in the area. For these reasons, Applicants respectfully request the ALJs issue a Proposal for Decision recommending approval of the Sand Lake to Solstice Project along route 320.

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154 Oncor/AEPTX Ex. 12 at 12-20 (Peppard Rebuttal); Oncor/AEPTX Ex. 14 at 9-11 (Reynolds Rebuttal).
155 Staff Ex. 2 at 11-14 (Bautista Direct).
156 Oncor/AEPTX Ex. 12 at 19 (Peppard Rebuttal).

The Applicants have also worked with Oxy and COG to assist in developing certain requested modifications in order to accommodate oilfield operations and avoid engineering constraints arising from such operations. Applicants are willing to accept these modifications provided that Oxy and/or COG obtain necessary approvals from the affected landowners.

Applicants thank the ALJs for their consideration of this docket.

IX. PROPOSED FINDINGS OF FACT[157]

Applicants

1. Oncor Electric Delivery Company LLC (Oncor) is an investor-owned electric utility providing service under certificate of convenience and necessity (CCN) number 30158.

2. AEP Texas Inc. (AEP Texas) is an investor-owned electric utility providing service under CCN number 30170.

Joint Application

3. On November 7, 2018, Oncor and AEP Texas (together, Applicants) filed with the Public Utility Commission of Texas (the Commission) a joint application (the Application) to amend their CCNs for the proposed Sand Lake to Solstice double-circuit 345-kilovolt (kV) transmission line (Sand Lake to Solstice Project) in Pecos, Reeves, and Ward counties. The Application was assigned Docket No. 48785.

4. The Applicants retained Halff Associates, Inc. (Halff) to perform and prepare an Environmental Assessment and Alternative Route Analysis (EA) for the Sand Lake to Solstice Project.

Procedural History

5. On November 7, 2018, the Applicants filed the direct testimony of their witnesses: Russell J. Marusak; Wilson P. Peppard; Thomas W. Reynolds, III; Brenda J. Perkins; and Brent R. Kawakami. AEP Texas filed corrected direct testimony of Thomas W. Reynolds, III, on November 29, 2018.

6. On November 7, 2018, Applicants as well as LCRA Transmission Services Corporation (LCRA TSC) filed a motion to consolidate the consideration of this project with AEP Texas and LCRA TSC's proposed Bakersfield to Solstice 345-kV transmission line project (Bakersfield to Solstice Project) originally filed in Commission Docket No. 48787, to issue

[157] For consistency, the content, organization and formatting of Applicants' Proposed Findings of Fact, Proposed Conclusions of Law, and Proposed Ordering Paragraphs contained herein were revised to conform to Attachment No. 3 of the Unanimous Stipulation on Routing of the Bakersfield to Solstice Project Within Pecos County, which was previously submitted in the consolidated proceeding.

a protective order, and to refer this matter to the State Office of Administrative Hearings (SOAH).

7. On November 14, 2018, the Commission issued an order of referral and preliminary order, referred this matter to SOAH, and identified a number of issues to be addressed.

8. On November 15, 2018, the SOAH administrative law judges (ALJs) issued Order No. 1 establishing the intervention deadline, consolidating Docket Nos. 48785 and 48787 into Docket No. 48785, providing notice of a prehearing conference, describing jurisdiction, and providing other information.

9. On December 10, 2018, the SOAH ALJs issued Order No. 2 giving notice of the convening of the hearing on the merits at the SOAH offices in Austin at 9:00 a.m. on February 15, 2019, and continuing on February 19-22, 2019. Also in Order No. 2, the ALJs granted in the consolidated docket the motions to intervene filed by Alan Zeman (Zeman), Oxy (comprised of Occidental Permian Ltd.; Oxy Delaware Basin, LLC; Oxy USA Inc.; Oxy USA WTP LP; Houndstooth Resources, LLC; and Occidental West Texas Overthrust, Inc.), the City of Garland, Elizabeth Graybill, and Mary Graybill-Rees.

10. Barbour, Inc. filed a statement of position on January 8, 2019. Zeman and Dwight Forrister, on behalf of the Forrister Generation-Skipping Trust (Forrister), filed direct testimony on January 9, 2019. Charles H. Midgely filed direct testimony on behalf of Plains Marketing, L.P. and Plains Pipeline, L.P. (together, Plains) on January 10, 2019. Albert Mendoza filed direct testimony on behalf of Oxy on January 10, 2019. Terry Burkes filed direct testimony on behalf of COG Operating LLC (COG) on January 10, 2019. Other testimony was filed in the consolidated docket relating to the Bakersfield to Solstice Project.

11. On January 15, 2019, the SOAH ALJs issued Order No. 3 granting intervenor status to the following parties interested in the Sand Lake – Solstice project: Cross V Ranch, LP; Barbour, Inc.; Forrister; Plains; and COG. Other intervenors granted party status—MMSmithfield Family Limited Partnership, Ltd.; Pettus Czar, Ltd.; Atmos Pipeline-Texas; Esther Dudley, MMEX Resources Corporation; Domingo A. Perez; Brockett & McNeel LLP; Kevin Wilson; and Dale and Dorothy Smith—only had an interest in the Bakersfield

to Solstice Project. SOAH Order No. 3 also granted the City of Garland's motion to withdraw as a party to this case.

12. On January 15, 2019, TPWD filed a letter regarding the proposed transmission facilities and made various comments and recommendations.

13. On January 18, 2019, Commission Staff filed an objection to and motion to strike portions of certain intervenors' direct testimony regarding: (1) electromagnetic fields and associated health concerns; (2) anticipated future uses of property or diminution in property values; and (3) construction-related transmission outages. Alternatively, Commission Staff requested that these portions of direct testimony be accorded appropriate evidentiary weight if found to be general statements of concern.

14. On January 18, 2019, the Applicants and LCRA TSC filed a joint letter, in compliance with SOAH Order No. 3, identifying the intervenors who did not file direct testimony or a statement of position as of the date of the letter.

15. On January 24, 2019, the SOAH ALJs issued Order No. 4 identifying intervenors who failed to file testimony or a statement of position by the January 10, 2019, deadline and proposing to remove these intervenors as parties to the proceeding.

16. On January 30, 2019, the SOAH ALJs issued Order No. 5, which overruled Commission Staff's objections and denied the motion to strike but granted its alternative request, determining that the challenged testimony would be considered intervenor statements of concern and given the appropriate evidentiary weight.

17. On January 30, 2019, Commission Staff filed the direct testimony of its witness, David Bautista, regarding the Sand Lake to Solstice Project.

18. On February 4, 2019, COG filed the cross-rebuttal testimony of Brent Lowery, and Oxy filed the cross-rebuttal testimony of Albert Mendoza.

19. On February 6, 2019, the Applicants filed the rebuttal testimony of Russell J. Marusak; Wilson P. Peppard; Thomas W. Reynolds, III; and Brenda J. Perkins.

20. On February 6, 2019, the Applicants and LCRA TSC moved to admit the direct testimony of Brent R. Kawakami into the evidentiary record because there was no challenge to project need.

21. On February 8, 2019, the SOAH ALJs issued Order No. 6, which cancelled the need phase of the hearing on the merits, scheduled a prehearing conference in its place, and admitted Brent R. Kawakami's testimony into evidence.

22. On February 19, 2019, the hearing on the merits concerning routing of the Bakersfield to Solstice Project was held, at which the parties introduced their pre-filed testimony and other materials into evidence. Applicants and LCRA TSC also filed a unanimous stipulation concerning need for both the Bakersfield – Solstice Project and the Sand Lake – Solstice Project, which was signed by all parties in the consolidated docket.

23. On February 20, 2019, the SOAH ALJs issued SOAH Order No. 9, dismissing the following parties from the consolidated docket for failure to file testimony or statements of position in accordance with the requirements of SOAH Order No. 2: Cross V. Ranch, L.P.; Domingo A. Perez; MMEX Resources Corporation; Ester Dudley; Kevin Wilson; and Brockett & McNeel LLP.

24. On February 21, 2019, the hearing on the merits concerning routing of the Sand Lake to Solstice Project was held, at which the parties introduced their pre-filed testimony and other materials into evidence, and live testimony was presented.

25. On February 22, 2019, the SOAH ALJs issued Order No. 10, severing the Bakersfield to Solstice Project from consolidated Docket No. 48785 and remanding the application for the Bakersfield to Solstice Project to the Commission to consider in light of the parties' settlement.

Description of the Transmission Line

26. The Sand Lake to Solstice Project consists of a new double-circuit 345-kV line to be generally built on lattice steel tower structures, extending from Oncor's Sand Lake Switch in Ward County to AEP Texas' Solstice Switch in Pecos County.

27. The Sand Lake to Solstice Project is approximately 44.5 to 58.7 miles in length, depending on the selected route.

28. The Sand Lake to Solstice Project also includes station work at Sand Lake and Solstice.

29. The Applicants will own, operate, and maintain their respective portions of the transmission line facilities including conductors, wires, structures, hardware, and easements.

30. The Application included one route that Applicants believe best meets the requirements of PURA and the Commission's rules (route 320) in addition to 28 other reasonable, feasible alternative routes, which the Applicants and Halff identified from among 408 preliminary alternative routes Halff developed in its EA filed with the Application.

31. The routes are based on a ROW width of approximately 160 feet. None of the necessary right-of-way has been acquired to date.

32. The new 345-kV transmission line is approximately 44.5 to 58.7 miles in length, depending on the selected route.

33. Route 320 is approximately 44.5 miles in length and is the shortest alternative route.

34. The estimated construction costs of the alternative routes range from approximately $98,220,000 to $126,903,000, excluding station costs.

35. Route 320 is the least expensive alternative route and is $28,683,000 less expensive than the most expensive alternative route.

36. All 29 routes identified in the Application are viable, feasible, and reasonable from a land use, environmental, engineering, and cost perspective.

37. Applicants identified route 320 as the route that best addresses the Commission's routing criteria.

Notice and Sufficiency of Application

38. On November 7, 2018, the Applicants provided written notice of the filing of the Application, including a link table, route descriptions, and maps: (1) to each county government in which any portion of the proposed facilities may be located; (2) to each municipality within five miles of the proposed facilities; (3) to each neighboring utility service within five miles of the proposed facilities; (4) to the Texas Office of Public Utility Counsel (OPUC); (5) to the United States Department of Defense Siting Clearinghouse (DOD); (6) to certain pipeline owners/operators; (7) by first-class mail to each owner of

land as stated on current county tax roll(s) that the Sand Lake to Solstice Project will directly affect if the requested certificate is granted. Applicants also provided a copy of the EA to Texas Parks and Wildlife Department (TPWD).

39. On November 20, 2018, the Applicants filed an affidavit attesting to, among other things, their provision of a copy of the EA to the TPWD and notice of the application to OPUC, municipalities, counties, neighboring utilities, the DOD, and directly affected landowners.

40. On November 26, 2018, Commission Staff recommended that the Applicants' application be deemed sufficient.

41. On November 28, 2018, the Applicants filed an affidavit attesting to notice of the Application published on November 15, 2018, in newspapers having general circulation in the counties where the CCN is being requested, including the *Monahans News* (Ward County), the *Fort Stockton Pioneer* (Pecos County), and the *Pecos Enterprise* (Reeves County).

42. On December 6, 2018, Commission Staff recommended that Applicants' notice be deemed sufficient.

43. On December 10, 2018, in SOAH Order No. 2, the SOAH ALJs found the Application to be sufficient and materially complete.

44. On December 10, 2018, in SOAH Order No. 2, the SOAH ALJs approved of the Applicants' provision of notice of the Application in this proceeding.

45. On January 14, 2019, the Applicants filed a supplemental affidavit attesting to re-sent notices provided to certain directly affected landowners.

46. On January 24, 2019, SOAH Order No. 4 was issued approving the Applicants' supplemental notice affidavit as compliant with Commission rules.

47. No party challenged the sufficiency of the Application.

Route Adequacy

48. The Applicants, together with their routing consultant, Halff, developed, evaluated and filed 29 geographically diverse alternative routes with the Application.

49. No party raised a route adequacy challenge.

50. The Application's 29 geographically diverse routes are an adequate number of reasonably differentiated alternative routes to conduct a proper evaluation.

Evidentiary Record

51. On February 8, 2019, the SOAH ALJs issued Order No. 6, admitting the testimony of Brent R. Kawakami supporting the need for the Sand Lake to Solstice Project.

52. On February 21, 2019, the hearing on the merits concerning routing of the Sand Lake to Solstice Project was held, at which the parties introduced their pre-filed testimony and other materials into evidence.

Public Input

53. To develop information on community values for the transmission facilities, the Applicants held a public open house meeting for the Sand Lake to Solstice Project in Pecos, Texas on August 15, 2018, in accordance with 16 TAC § 22.52.

54. The Applicants mailed a total of 775 individual written notices of the public open house meeting to all owners of property within 500 feet of the centerline of each preliminary alternative segment.

55. Oncor, on behalf of the Applicants, provided the DOD with notice of the public meeting.

56. On August 9, 2018, notice of the public open house meeting was published in the *Fort Stockton Pioneer*, a local newspaper of general circulation in Pecos County; the *Monahans News*, a local newspaper of general circulation in Ward County; and the *Pecos Enterprise*, a local newspaper of general circulation in Reeves County.

57. A total of nine people signed in as attending the public open house meeting, including one member of the local media and one local official.

58. Attendees of the public open house meeting were provided questionnaires. One person submitted a questionnaire at the public open house meeting, and electronic data was received from the local official attendee after the meeting.

59. The public feedback the Applicants received from the public open house meeting and from local, state, and federal agencies was evaluated and considered in determining the routes to be included in the Application. Based on input, comments, information received at and

following the public open house meeting, and additional analyses conducted by the Applicants and Halff, revisions were made to the preliminary alternative route analysis.

60. On September 17, 2018, the DOD informed the Applicants that its informal review concluded that the Sand Lake to Solstice Project would have minimal impact on military operations in the area.

61. Based on information Halff received from the public involvement program, in consultation with the Applicants, and subsequent reconnaissance surveys, portions of thirty-six existing preliminary route links were modified, and several were divided for a net increase of five alternative links.

Adequacy of Existing Service and Need for the Transmission Line

62. The Sand Lake to Solstice Project is needed to: (1) support load growth in the Far West Texas area; (2) address reliability violations under Electric Reliability Council of Texas (ERCOT) reliability criteria and North American Electric Reliability Corporation (NERC) reliability standards; and (3) provide the infrastructure necessary to facilitate future transmission system expansion to continue to support that load growth.

63. The Far West Texas area is experiencing rapidly growing load due primarily to oil and natural gas production, processing, and transportation, as well as associated economic expansion. On the nearby Culberson Loop transmission lines, between 2012 and 2017 the load rose from 29.3 megawatts (MW) to 246.4 MW, a more than eight-fold increase.

64. Based solely on actual load increases for Oncor substations and confirmed customer load increases (based on financially committed customer contracts), loads on the Culberson Loop lines are expected to increase significantly, with projected 2019 non-coincident summer peak load on these lines of 902 MW, and ultimately 1,549 MW of projected non-coincident summer peak load on these lines by 2022.

65. If the load projection parameters are expanded to take into account pending requests that are currently being studied and contractually negotiated between Oncor and customers, there is a probable likelihood of even further growth for non-coincident summer peak loads; current projections estimate that, for 2020, the non-coincident summer peak load grows to 1,406 MW; for 2021, it grows to 1,563 MW; and for 2022, it grows to 1,639 MW.

66. In April 2016, the Applicants submitted for review by ERCOT's Regional Planning Group (RPG), an independent organization under PURA § 39.151, a suite of projects known as the "Far West Texas Project."

67. ERCOT performed steady state and dynamic stability power flow studies during its independent review of the Far West Texas Project and found multiple violations under NERC Reliability Standard TPL-001-4.

68. ERCOT's steady state analysis when reviewing the Far West Texas Project identified the following violations: thermal violations on multiple lines in the Barilla Junction Area under single contingencies in both generation cases it studied; unsolvable contingencies; and various voltage violations and unacceptable voltage deviations in the Culberson Loop under one or both cases studied.

69. ERCOT conducted detailed analyses and tests of four short-listed options and, in June 2017, ERCOT's Board of Directors endorsed construction of, among other things, a new 345-kV transmission line extending from Bakersfield to Solstice, to be built by LCRA TSC and AEP Texas on double-circuit-capable 345-kV structures with one 345-kV circuit initially installed, and expansion of Solstice to include the installation of a 345-kV ring-bus arrangement with two 600 MVA, 345/138-kV autotransformers.

70. In February 2018, Oncor submitted a suite of projects known as the "Far West Texas Project 2" to the ERCOT RPG.

71. ERCOT conducted an independent review of the Far West Texas Project 2, found multiple reliability violations under NERC Reliability Standard TPL-001-4, and conducted detailed analyses of three short-listed options. In June 2018, ERCOT's Board of Directors endorsed construction of, among other things, a variation of the proposed Far West Texas Project 2 to include the Sand Lake – Solstice double-circuit 345-kV line, expansion of Sand Lake Switch and additions at Solstice Switch, and a second circuit on the Bakersfield – Solstice line, and it endorsed them as Tier 1 transmission projects needed to support the reliability of the ERCOT transmission system. Further, ERCOT's Board of Directors endorsed the proposed transmission facilities as critical to the reliability of the ERCOT transmission system pursuant to 16 TAC § 25.101(b)(3)(D).

72. The Commission's certification rule, 16 TAC § 25.101(b)(3)(A)(ii)(I), states that ERCOT's recommendation shall be given great weight in determining the need for a proposed transmission line project.

73. As approved by ERCOT, the Far West Texas Project 2 includes the following components relevant to the Sand Lake to Solstice Project: (i) expansion of the Sand Lake Switch Station to install two new 600 MVA, 345/138-kV autotransformers as well as additions at the Solstice Switch Station; and (ii) construction of an approximately 40-mile, 345-kV transmission line on double-circuit structures, with two circuits in place between Sand Lake and Solstice.

74. During the course of its independent reviews, ERCOT evaluated numerous alternatives based on variations of different transmission solutions before endorsing the proposed transmission facilities as components of ERCOT's overall recommended transmission solution.

75. ERCOT used cost and reliability performance comparisons to further narrow its analysis to several short-listed options to resolve the identified NERC violations, each of which included the Sand Lake to Solstice Project.

76. The Sand Lake to Solstice Project will facilitate robust wholesale competition by facilitating the delivery of economical electric power at 345-kV from existing and future generation resources located both inside and outside of the project study areas to existing and future electric customers in those areas.

77. The Sand Lake to Solstice Project is not proposed to interconnect new transmission service customers.

78. Electric customers within the area of the Sand Lake to Solstice Project and other customers in the ERCOT system will benefit from the improved transmission system reliability and capacity provided by the proposed transmission facilities.

79. Voltage upgrades, conductor bundling, and additional transformers were each considered and rejected as inadequate alternatives.

80. Distribution alternatives to the Sand Lake to Solstice Project were considered and rejected because they would not improve the reliability and operational capability of the transmission system in the area.

81. All existing transmission facilities in the study areas were constructed and operate at 138-kV, and serve customers directly; thus, upgrading of voltage would require all customers and existing stations to be rebuilt in order to be served from 345-kV.

82. Conductor bundling would not address the reliability and operational issues under the contingencies of concern because any bundled circuits would necessarily be located on the same structures as the existing 138-kV lines in the area. Additionally, bundling conductors does not provide bi-directional looped service capability, which is needed to address the reliability and operational flexibility for existing and future customers.

83. Adding transformers would not address the reliability and operational issues under the contingency of concern since new 345/138-kV transformers within the Culberson Loop would still be served from the planned Odessa EHV – Riverton / Moss – Riverton 345-kV transmission line.

84. The Sand Lake to Solstice Project will address critical reliability issues resulting from rapid load growth in an area of oil and natural gas development and associated economic expansion; more specifically, the Sand Lake to Solstice Project will support load growth in the area, address reliability violations under ERCOT protocols and NERC reliability standards, and provide infrastructure necessary to facilitate future transmission system expansion, all of which will improve service for new and existing customers in the area.

85. The Sand Lake to Solstice Project will deliver 345-kV transmission to an area that is not currently served at this voltage.

86. The Sand Lake to Solstice Project is the best way to ensure adequate voltage in the Far West Texas area based on considerations of engineering, efficiency, reliability, costs, and benefits.

87. The Sand Lake to Solstice Project will improve transmission service in the Far West Texas area.

88. No party has challenged the need for the proposed transmission facilities, and a unanimous stipulation concerning the need for the facilities was admitted into evidence.

Effect of Granting Certificate on Other Utilities

89. The Sand Lake to Solstice Project will not adversely affect service by other utilities in the area and will improve system reliability and capacity in the area.

Estimated Costs

90. The estimated costs for the alternative routes range from $98,220,000 to $126,903,000, excluding station costs.

91. Oncor estimates the project-related modifications at Sand Lake Switch will cost approximately $17.6 million. AEP Texas estimates the project-related modifications to Solstice Switch will cost approximately $10.1 million for upgrades to interconnect the transmission line from Sand Lake.

92. Route 320 is estimated to cost $98,220,000, excluding station costs, which is the least expensive of the alternative routes and $28,683,000 less than the most expensive alternative route filed with the Application.

93. Oncor intends to finance its portion of the transmission facilities with a combination of debt and equity in compliance with its authorized capital structure.

94. AEP intends to finance its portion of the transmission facilities with a combination of debt and equity.

Prudent Avoidance

95. Prudent avoidance is defined in 16 TAC § 25.101(a)(6) as the "limiting of exposures to electric and magnetic fields that can be avoided with reasonable investments of money and effort."

96. The greatest number of habitable structures within 500 feet of the centerline of any alternative route is 66, and the least number of habitable structures within 500 feet of the centerline of any alternative route is 2.

97. Route 320 has 38 habitable structures within 500 feet of the centerline, of which 34 are mobile living or office units that are temporarily in place and appear to have no permanent foundations or permanent utilities in place.

98. All of the alternative routes presented in the Application, including route 320, conform to the Commission's policy of prudent avoidance in that they reflect reasonable investments of money and effort in order to limit exposure to electric and magnetic fields.

Community Values

99. The majority of the Sand Lake to Solstice Project area consists of rural, undeveloped land used primarily for oil and gas production, livestock grazing, and irrigated crop production.

100. None of the identified routes traverse a heavily populated residential area. Whenever possible, the Applicants and Halff avoided identifying alternative route segments near habitable structures.

101. The Sand Lake to Solstice Project comports with the community values for the area it encompasses.

Using or Paralleling Compatible Rights-of-Way

102. In developing alternative routes, the Applicants took into account the use of the paralleling of existing ROWs (e.g., existing transmission lines, public roads and highways, railroads, and telephone utilities), apparent property boundaries, and natural or cultural features.

103. The alternative routes are adjacent to and parallel existing transmission lines, other existing ROW (e.g., existing transmission lines, public roads and highways, railroads, and telephone utilities), and apparent property lines from 17.3% to 48.7% of the length of the route.

104. Route 320 is parallel to existing compatible corridors, including existing transmission lines, public roads and highways, railroads, and apparent property boundaries, for approximately 27.2% of its length.

Engineering Constraints

105. The area encompassing the Sand Lake to Solstice Project is undergoing rapid development in energy infrastructure.

Radio Towers and Other Electronic Installations

106. One known commercial AM radio transmitter was identified within 10,000 feet of the centerline of two alternative routes—routes 370 and 404.

107. With the exception of routes 370 and 404, no known commercial AM radio transmitter was identified within 10,000 feet of the centerline of the alternative routes, including route 320.

108. The number of FM, microwave, and other electronic installations located within 2,000 feet of the centerline of any of the alternative routes ranges from zero to four.

109. There are no FM, microwave, and other electronic installations located within 2,000 feet of the centerline of route 320.

Airstrips and Airports

110. There are no FAA-registered airports with no runway greater than 3,200 feet in length within 10,000 feet of the centerline of any of the alternative routes.

111. The number of FAA-registered airports with at least one runway more than 3,200 feet in length within 20,000 feet of the centerline of the alternative routes ranges from zero to two.

112. There are no FAA-registered airports with at least one runway more than 3,200 feet in length within 20,000 feet of the centerline of route 320.

113. There are no private airstrips within 10,000 feet of the centerline of any of the alternative routes.

114. There are no heliports within 5,000 feet of the centerline of any of the alternative routes.

Irrigation Systems

115. Routes 370 and 404 traverse 3,043 feet of agricultural cropland with mobile irrigation systems.

116. With the exception of routes 370 and 404, none of the alternative routes, including route 320, impact any agricultural cropland with mobile irrigation systems.

Recreational and Park Areas

117. None of the alternative routes, including route 320, directly cross any park or recreational areas.

118. No parks or recreational areas are located within 1,000 feet of the centerline of any of the alternative routes, including route 320.

119. No significant impacts to the use of parks or recreation facilities located within the study area are anticipated from any of the alternative routes, including route 320.

Historical and Archaeological Values

120. The number of previously recorded cultural resource sites crossed by an alternative route ranges from zero to two.

121. Route 320 does not cross any previously recorded cultural resource site.

122. No significant impacts to historical and archaeological values are anticipated from any of the alternative routes, including route 320.

Aesthetic Values

123. The length of the route within the foreground visual zone of U.S. and state highways of the alternative routes ranges from 14,222 to 32,979 feet.

124. Route 320 has 20,298 feet within the foreground visual zone of U.S. and state highways.

Environmental Integrity

125. The EA analyzed the possible impacts of the Sand Lake to Solstice Project on numerous different environmental factors.

126. The Applicants and Halff appropriately performed an evaluation of the impacts of the Sand Lake to Solstice Project on the environment, including endangered and threatened species.

127. It is appropriate that the Applicants minimize the amount of flora and fauna disturbed during construction of the transmission facilities.

128. It is appropriate that the Applicants re-vegetate cleared and disturbed areas using native species and consider landowner preferences in doing so.

129. It is appropriate that the Applicants avoid, to the maximum extent reasonably possible, causing adverse environmental impacts to sensitive plant and animal species and their habitats as identified by TPWD and the United States Fish and Wildlife Service.

130. It is appropriate that the Applicants implement erosion control measures and return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowners. It is not appropriate that the Applicants restore original contours and grades where different contours and grades are necessary to ensure the safety or stability of any transmission line's structures or the safe operation and maintenance of the transmission lines.

131. It is appropriate that the Applicants exercise extreme care to avoid affecting non-targeted vegetation or animal life when using chemical herbicides to control vegetation within the ROW, and such herbicide use must comply with the rules and guidelines established in the Federal Insecticide, Fungicide, and Rodenticide Act and with Texas Department of Agriculture regulations.

132. It is appropriate that the Applicants use best management practices to minimize the potential impact to migratory birds and threatened or endangered species.

133. The Sand Lake to Solstice Project is not anticipated to significantly adversely impact populations of any federally-listed endangered or threatened species.

134. No significant impacts to geological resources, hydrological resources, wetland resources, ecological resources, endangered and threatened species, land use or environmental integrity are anticipated as a result of the construction of the Sand Lake to Solstice Project.

Probable Improvement of Service or Lowering of Consumer Cost

135. The Sand Lake to Solstice Project is needed to satisfy reliability and load growth issues in the project area, and it will result in improved service to electric customers for the reasons described in the findings of fact addressing the need for the Sand Lake to Solstice Project.

TPWD's Comments and Recommendations

136. On January 15, 2019, TPWD filed a letter making various comments and recommendations regarding the Sand Lake to Solstice Project.

137. TPWD's comment letter addressed issues relating to impacts on ecology and the environment, but did not consider the other factors the Commission and utilities must consider in CCN applications.

138. The Applicants and Halff have taken into consideration the recommendations offered by TPWD.

139. Halff relied on habitat descriptions from various sources, including the Texas Natural Diversity Database and other sources provided by TPWD, along with observations from field reconnaissance, to determine whether habitat for some species is present in the area encompassing the transmission facilities.

140. Once a route is approved by the Commission, the Applicants can undertake on-the-ground measures to identify potential endangered or threatened species' habitats and respond appropriately.

141. The Applicants will use avoidance and mitigation procedures to comply with laws protecting federally listed species.

142. The Applicants will revegetate the new ROW as necessary and according to the Applicants' vegetation management practices, the Storm Water Pollution Prevention Plan (SWPPP) developed for construction of the Sand Lake to Solstice Project, and, in many instances, landowner preferences or requests.

143. The Applicants' standard vegetation removal, construction, and maintenance practices adequately mitigate concerns expressed by TPWD.

144. The Applicants will use appropriate avian protection procedures.

145. The Applicants will comply with all environmental laws and regulations, including those governing threatened and endangered species.

146. The Applicants will comply with all applicable regulatory requirements in constructing the Sand Lake to Solstice Project, including any applicable requirements under § 404 of the Clean Water Act.

147. The Applicants will coordinate with United States Fish and Wildlife Service and TPWD if threatened or endangered species' habitats are identified during field surveys.

148. Environmental permitting and mitigation measures are determined after a route is approved by the Commission and on-the-ground surveys are completed for the route. Should construction impact federally-listed species or their habitat or impact water under the

jurisdiction of the United States Army Corps of Engineers or the Texas Commission on Environmental Quality (TCEQ), the Applicants will coordinate with the United States Fish and Wildlife Service, United States Army Corps of Engineers, and TCEQ as appropriate to coordinate permitting and any required mitigation.

149. The standard mitigation requirements included in the ordering paragraphs in this Order, coupled with the Applicants' current practices, are reasonable measures for a transmission service provider to undertake when constructing a transmission line and are sufficient to address TPWD's comments and recommendations.

Permits

150. Before beginning construction of the Sand Lake to Solstice Project, it is appropriate for the Applicants to conduct a field assessment of each utility's portion of the transmission line to identify water resources, cultural resources, potential migratory bird issues, and threatened and endangered-species' habitats impacted as a result of the transmission line. As a result of these assessments, the Applicants will identify any additional permits that are necessary, will consult any required agencies, will obtain all necessary permits, and will comply with the relevant permit conditions during construction and operation of their respective portions of the transmission line.

Coastal Management Program

151. Commission rule 16 TAC § 25.102(a) states that the "commission may grant a certificate for the construction of generating or transmission facilities within the coastal boundary as defined in 31 TAC § 503.1 only when it finds that the proposed facilities are consistent with the applicable goals and policies of the Coastal Management Program specified in 31 TAC § 501.14(a), or that the proposed facilities will not have any direct and significant impacts on any of the applicable coastal natural resource areas specified in 31 TAC § 503.1(b)."

152. No part of the Sand Lake to Solstice Project is located within the boundary of the Coastal Management Program as defined in 31 TAC § 501.3(b).

Effect on the State's Renewable Energy Goal

153. The Texas Legislature established a goal in PURA § 39.904(a) for 10,000 megawatts of renewable capacity to be installed in Texas by January 1, 2025. This goal has already been met.

154. The Sand Lake to Solstice Project will not adversely affect the goal for renewable energy development established in PURA § 39.904(a).

Conditional Authority

155. It is reasonable and appropriate for a CCN order not to be valid indefinitely because it is issued based on the facts known at the time of issuance.

156. Seven years is a reasonable and appropriate limit to place on the authority granted in this Order to construct the transmission facilities.

X. PROPOSED CONCLUSIONS OF LAW

1. Oncor is a public utility as defined in PURA § 11.004 and an electric utility as defined in PURA § 31.002(6).
2. AEP Texas is a public utility as defined in PURA § 11.004 and an electric utility as defined in PURA § 31.002(6).
3. Oncor and AEP Texas must obtain the approval of the Commission to construct the proposed transmission facilities and provide service to the public using those facilities.
4. The Application is sufficient under 16 TAC § 22.75(d).
5. This docket was processed in accordance with the requirements of PURA, the Administrative Procedure Act (Texas Government Code Chapter 2001), and the Commission's rules.
6. Oncor and AEP Texas provided proper notice of the Application in compliance with PURA § 37.054 and 16 TAC § 22.52(a).
7. Additional notice of the approved route is not required.
8. Oncor and AEP Texas provided notice of the public open house meeting in compliance with 16 TAC § 22.52(a)(4).

9. The Sand Lake to Solstice transmission line project using route 320 is necessary for the service, accommodation, convenience, or safety of the public within the meaning of PURA § 37.056.

10. The Texas Coastal Management Program does not apply to any of the transmission facilities proposed in the Application, and the requirements of 16 TAC § 25.102 do not apply to the Application.

11. No modifications to the Sand Lake to Solstice Project are required as a result of the recommendations and comments made by TPWD.

12. The Commission has jurisdiction and authority over this matter under PURA §§ 14.001, 32.001, 37.051, 37.053, 37.054, and 37.056.

13. SOAH has jurisdiction to conduct a hearing on the merits and to prepare a proposal for decision under PURA § 14.053 and Texas Government Code §§ 2003.021 and 2003.049.

14. The hearing on the merits was set, and notice of the hearing was provided, in compliance with Texas Government Code §§ 2001.051 and 2001.052.

15. Route 320 complies with PURA § 37.056(c)(4) and 16 TAC § 25.101, including the Commission's policy of prudent avoidance, to the extent reasonable to moderate the impact on the affected community and landowners.

XI. PROPOSED ORDERING PARAGRAPHS

In accordance with these findings of fact and conclusions of law, the Commission issues the following orders:

1. The Commission approves the construction and operation of the Sand Lake to Solstice Project as specified in this Order on route 320, comprised of the following segments: A-B2-B3-C2-D2-F3-G4-G51-I2-J1-J7-L1-Z.

2. The Commission approves Oncor's and AEP Texas's application to build a new double-circuit 345-kV transmission line extending from Oncor's Sand Lake Switch in Ward County to AEP Texas's Solstice Switch in Pecos County. The approved route for the transmission facilities is route 320 as described in the EA.

3. The Commission amends Oncor's CCN number 30158 to include construction and operation of the transmission facilities requested from Sand Lake Switch up to, but not including, the structure at the node of Links G4 and G51.

4. The Commission amends AEP Texas' CCN number 30170 to include construction and operation of the transmission facilities requested from Solstice Switch up to, and including, the structure at the node of Links G4 and G51.
5. The authority granted by this Order is limited to a period of seven years from the date the order is signed unless, before that time, the transmission line is commercially energized.
6. If the Applicants or their contractors encounter any archaeological artifacts or other cultural resources during project construction, work must cease immediately in the vicinity of the artifact or resource and the discovery must be reported to the Texas Historical Commission (THC). In that situation, the Applicants must take action as directed by the THC.
7. The Applicants must follow the procedures to protect raptors and migratory birds as outlined in the following publications: *Reducing Avian Collisions with Power Lines: State of the Art in 2012*, Edison Electric Institute (EEI) and Avian Power Line Interaction Committee (APLIC); *Suggested Practices for Avian Protection on Power Lines, The State of the Art in 2006*, EEI, APLIC, and the California Energy Commission, Washington, DC and Sacramento, CA, 2006; and the *Avian Protection Plan Guidelines*, APLIC and USFWS, April 2005. The Applicants must take precautions to avoid disturbing occupied nests and take steps to minimize the impact of construction on migratory birds during the nesting season of the migratory bird species identified in the area of construction.
8. The Applicants must exercise extreme care to avoid affecting non-targeted vegetation or animal life when using chemical herbicides to control vegetation within the right-of-way (ROW). Herbicide use must comply with rules and guidelines established in the Federal Insecticide, Fungicide, and Rodenticide Act and with Texas Department of Agriculture regulations.
9. The Applicants must minimize the amount of flora and fauna disturbed during construction of the transmission line, except to the extent necessary to establish appropriate ROW clearance for the transmission line. In addition, the Applicants must re-vegetate using native species and must consider landowner preferences and wildlife needs in doing so. Furthermore, to the maximum extent practical, the Applicants must avoid adverse environmental impact to sensitive plant and animal species and their habitats, as identified by TPWD and the USFWS.

10. The Applicants must implement erosion control measures as appropriate. Erosion control measures may include inspection of the ROW before and during construction to identify erosion areas and implement special precautions as determined reasonable to minimize the impact of vehicular traffic over the areas. The Applicants must return each affected landowner's property to its original contours and grades unless otherwise agreed to by the landowner or the landowner's representative. The Applicants will not be required to restore original contours and grades where a different contour or grade is necessary to ensure the safety or stability of the structures or the safe operation and maintenance of the line.

11. The Applicants must use best management practices to minimize the potential impact to migratory birds and threatened or endangered species.

12. The Applicants must cooperate with directly affected landowners to implement minor deviations in the approved route to minimize the impact of the proposed transmission line project. Any minor deviations in the approved route must only directly affect landowners who were sent notice of the transmission line in accordance with 16 TAC § 22.52(a)(3) and landowners that have agreed to the minor deviation, excluding public ROW.

13. The Applicants are not permitted to deviate from the approved route in any instance in which the deviation would be more than a minor deviation, without further amending their CCNs.

14. The Applicants must conduct surveys, if not already completed, to identify metallic pipelines that could be affected by the transmission line and coordinate with pipeline owners in modeling and analyzing potential hazards because of alternating-current interference affecting pipelines being paralleled.

15. If possible, and subject to the other provisions of this Order, the Applicants must prudently implement appropriate final design for the transmission lines so as to avoid being subject to the Federal Aviation Administration (FAA)'s notification requirements. If required by federal law, the Applicants must notify and work with the FAA to ensure compliance with applicable federal laws and regulations. The Applicants are not authorized to deviate materially from this Order to meet the FAA's recommendations or requirements. If a material change would be necessary to comply with the FAA's recommendations or requirements, the Applicants must file an application to amend their CCNs as necessary.

16. The Applicants must identify any additional permits that are necessary, must consult any required agencies (such as the United States Army Corps of Engineers and United States Fish and Wildlife Service), must obtain all necessary environmental permits, and must comply with the relevant conditions during construction and operation of the proposed transmission facilities.

17. The Applicants must include the transmission facilities approved by this Order on their monthly construction progress report before the start of construction to reflect the final estimated cost and schedule in accordance with 16 TAC § 25.83(b). In addition, the Applicants must provide final construction costs, with any necessary explanation for cost variance, after completion of construction when all costs have been identified.

18. All other motions, requests for entry of specific findings of fact or conclusions of law, and any other requests for general or specific relief, if not expressly granted herein, are hereby denied.

Respectfully submitted,

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CERTIFICATE OF SERVICE

It is hereby certified that a copy of the foregoing has been hand-delivered or sent via courier service, email, fax, overnight delivery, or first class United States mail, postage prepaid, to all parties of record in this proceeding, on the 5th day of March 2019.